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ABSTRACT

Several intermediate performance objectives and corresponding criterion measures are listed for each of 24 terminal objectives for a basic secondary level service station attendant course. The materials were developed for a two-semester course (2 and 3 hours daily). The specialized classroom and shop experiences are designed to enable the student to develop basic competencies in the operation of an automotive service station with emphasis on sales, service, recordkeeping, safety, preventive maintenance, product display, customer relations, cooling systems, electrical systems, and lubrication. The titles of the 24 terminal objectives are Orientation, Safety, Human Relations, Island Sales, Daily Sales Records, Hand Tools and Measurements, Parts and Service Manuals, Lubrication Service, Motor Oil, Filters, Tires and Tire Service, Wheels and Wheel Balance, Basic Electricity, Engine Theory and Design, Tune-Up Electrical, Carburetion, Cooling Systems, Exhaust, Brakes, Suspension and Shock Absorbers, Vehicle Appearance, Station Housekeeping, Merchandising, and Air Conditioning. (This manual and 54 others were developed for various secondary level vocational courses using the System Approach for Education (SAFE) guidelines.) (HD)

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Service Station Attendant

PERFORMANCE OBJECTIVES

BASIC COURSE

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July, 1975

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A C K N O W L E D G E M E N T S

This manual was developed using System Approach For Education (SAFE) guidelines.

Appreciation and recognition are extended to the following educators who have assisted in the preparation of this manual:

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SERVICE STATION ATTENDANT

ACCREDITATION NUMBER: 9897

LENGTH OF COURSE: 2 semesters

TIME BLOCKS: 2 and 3 hours daily

COURSE DESCRIPTION

Specialized classroom and shop experiences designed to enable the student to develop basic competencies in the operation of an automotive service station with emphasis on sales, service, record keeping, safety, preventative maintenance, product display, customer relations, cooling systems, electrical systems, and lubrication. Students are encouraged to participate in the activities of the Vocational Industrial Clubs of America.

SERVICE STATION ATTENDANT

Syllabus of Terminal Objectives

1.0 Orientation

2.0 Safety

3.0 Human Relation

4.0 Island Sales

5.0 Daily Sales Records

6.0 Hand Tools and Measurements

7.0 Parts and Service Manuals

8.0 Lubrication Service

9.0 Motor Oil

10.0 Filters

11.0 Tires and Tire Service

12.0 Wheels and Wheel Balance

13.0 Basic Electricity

14.0 Engine Theory and Design

15.0 Tune-Up Electrical

16.0 Carburetion

17.0 Cooling Systems

18.0 Exhaust

19.0 Brakes

20.0 Suspension and Shock Absorbers

21.0 Vehicle Appearance

22.0 Station Housekeeping

23.0 Merchandising

24.0 Air Conditioning

SKILL PERFORMANCE EVALUATION

Student _____

Assignment _____

Grading Area	6	7	8	9	10	Points
Follow Instructions						
Safety						
Specification Interpretation						
Use of Time						
Initiative						
Neatness						
Use of Tools						
Use of Equipment						
Use of Material						
Accuracy						
					TOTAL	

Instructions:

To convert raw score to grade, multiply points by 10 and divide by number of areas student is scored.

CURRICULUM GOAL

Upon completion of this program, 90% of the students will qualify in one or more of three skill levels with a proficiency of 75%. (measures attached)

1. Island sales and service
2. Bay mechanic
3. Station management

Levels to be determined by testing vehicle compiled by instructor and craft committee:

Although most students can achieve a measure of success in one or more of the skill levels, certain pre-requests are necessary.

1. Have history of regular attendance
2. Pass instructor devised test to evaluate math and reading comprehension
3. Agreement of student and parents to obtain necessary clothing and supplies

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 1.0 ORIENTATION

The student will demonstrate familiarity with: Course Objective, Class and Shop Procedures, and Career Opportunities in the Oil and Automotive Service Industry, as evidenced by answers to written criterion questions with a proficiency of 80%.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		1.0	Test attached
1.1	The student will demonstrate knowledge and understanding of course objectives by identifying two or more levels in which he may qualify.	1.1	A. Fill blanks with the job levels taught in this course. 1._____ 2._____ 3._____ B. Describe briefly the qualifications of the ones you have named
1.2	The student will demonstrate knowledge of course benefits by selecting correctly five of the seven listed.	1.2	Select and circle the number before each of the following benefits that apply to this course. 1. All class work 2. Learn by doing 3. Preparation for a job 4. Job placement service 5. Plenty of home work 6. Go to lunch early 7. Always wear dress clothes
1.3	The student will demonstrate his recognition of career opportunities and job levels possible for him to reach by correctly answering 70% given written questions	1.3	A. In the space provided, list 5 oil companies operating in this area. 1._____ 2._____ 3._____ 4._____ 5._____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 1.0 (cont'd) ORIENTATION

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		1.3	B. In the following spaces, list at least 3 job levels you may reach. 1. _____ 2. _____ 3. _____ 4. _____ C. From the following list, select and circle the number before the qualities that are essential to a good service station salesman. 1. Good looks 2. Neat appearance 3. Like people 4. Be married 5. Mechanical aptitude 6. Dependability 7. Honest 8. Alert
1.4	The student will indicate understanding of course evaluation by selecting all of the areas in which he will be graded.	1.4	Select and cirle the number before each area below of areas in which you will be graded. 1. Dependability 2. Handwriting 3. Trade knowledge 4. Spelling 5. Personal appearance 6. Work habits 7. Attitude 8. Attendance 9. Trade skill 10. Speed

TPO 1.0 - SERVICE STATION ATTENDANT

ORIENTATION

1. What levels of employment do you feel that you as an individual will be qualified upon your completion of this course.

   A._____
   B._____
   C._____

2. In your opinion, what are the three (3) most essential qualities, for a good Service Station Salesman?

   A._____
   B._____
   C._____

3. At this point do you feel that you would like to enter this field of work? Explain briefly why, or why not.

   _____
   _____
   _____
   _____

4. Which of the areas that you will be graded in seem to you the most important?

   _____

5. Are you aware of the importance of good attendance?_____
   List at least five (5) other grading areas that will be effected by poor attendance.
   A._____
   B._____
   C._____
   D._____
   E._____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 2.0 SAFETY

Upon completion of instructions, demonstrations and discussion, 90% of the students will indicate their knowledge of service station safety practices by correctly answering an instructor devised criterion test.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		2.0	Test attached.
2.1	The student will list at least 5 hazardous jobs that must be performed by station employees.	2.1	List 5 jobs that must be performed by station employee that are hazardous. 1._____ 2._____ 3._____ 4._____ 5._____
2.2	Students will indicate knowledge of good housekeeping procedures by solving 75% of a list of hazards.	2.2	Briefly explain how the following hazards may be eliminated. 1. slips and falls 2. eye injury 3. spontaneous combustion 4. back injury 5. skin damage
2.3	The student will indicate his knowledge of legal regulations relating to health and hazardous working conditions by listing at least three agencies changed with enforcement.	2.3	List three government agencies who inspect shop safety practices and equipment. 1._____ 2._____ 3._____

TPO 2.0 - SERVICE STATION ATTENDANT

SAFETY

1. What is meant by the phrase "necessary hazard".

2. Which of the following best describes good service station housekeeping.

   a. clean and neat
   b. disposal cans for waste
   c. a place for everything
   d. everthing in place
   e. all of these

3. Answer the following true or false.

   a. Spilled grease or oil should be removed from the floor after each shop session. _____
   b. Greasy rags should be kept in a box ready for laundry. _____
   c. The first step in safety practices is to recognize the hazards. _____
   d. Stations are required by law to operate a safe shop. _____
   e. Back injuries are usually the result of falls. _____

4. In the space provided list the type of extinquisher to be used on the following types of fire.

   a. electrical _____
   b. fabric _____
   c. gasoline _____
   d. wood _____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 3.0 HUMAN RELATIONS

Upon completion of instructions and classroom discussion 90% of the students will demonstrate, with a 75% or better proficiency level, knowledge of benefits resulting from good student to student and employee-employer relations by answering written criterion questions.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		3.0	See attached test.
3.1	The student will, with 75% accuracy, answer questions of student organizations available.	3.1	Fill in blanks to make a true statement of the following: 1. VICA is a club designed especially for _____ and _____ students. 2. The letters VICA means: _____ _____ _____ _____ 3. Any _____ or _____ student may be a member of VICA. 4. The cost to become a member of VICA is ____. 5. List 3 benefits derived from VICA membership. 1. _____ 2. _____ 3. _____
3.2	The student will demonstrate knowledge of a successful job interview by identifying with 75% accuracy necessary requirements from a given list.	3.2	Select and underline those statements desirable for a successful job interview. 1. Be on time for interview 2. Be tired and cross 3. Be as vaque as possible 4. Lead the conversation 5. Be clean and neat 6. Be sleepy and relaxed 7. Answer questions specifically 8. Leave when interview is over 9. Flatter the boss 10. Carry nothing in your pockets

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 3.0 (cont'd)

HUMAN RELATIONS

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
3.3	The students will with 75% accuracy demonstrate knowledge of methods in which an employee may assist employer in good public relations by answering true-false questions.	3.3	Answer True or False on the following statements as they relate to good public relations. ____1. Dress as you please ____2. Be courteous to customers ____3. Leave work early ____4. Win all arguments ____5. Take inventory everyday ____6. Be loyal to employer ____7. Recommend needed items ____8. Do sloppy work ____9. Clean out stock room ____10. Polish customer's car
3.4	Given a random employment application, student will correctly complete form with 80% proficiency. (Sample included)	3.4	Fill out all spaces in the employment application as they apply to you.
3.5	The student will demonstrate knowledge of good telephone manners by identifying with 80% accuracy poor techniques as given on a tape recording.	3.5	The assigned tape recording has 10 poor telephone techniques demonstrated. Listen and identify each.

TPO 3.0 - SERVICE STATION ATTENDANT

HUMAN RELATIONS

1. Fill out employment application, filling each space as it applies to you.

2. Hold interview (the instructor will act as a prospective employer) for employment at a service station. Given all information, qualifications and reference you as a student may have.

3. List five (5) means of usefulness for an idle employee to his employer.

_____

_____

_____

_____

_____

4. a. What, in your opinion, is the greatest asset an employee can give his employer?

_____

b. Explain briefly why this choice.

_____

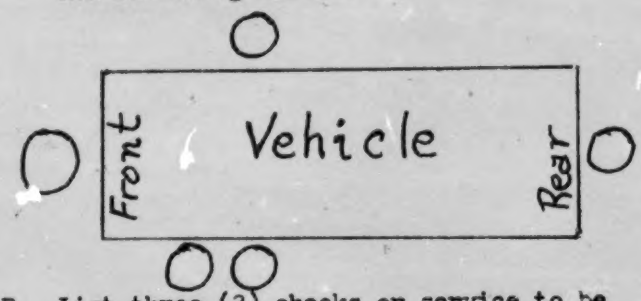
_____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 4.0

ISLAND SALESMANSHIP

Upon completion of this unit, student will demonstrate knowledge and application of effective sales techniques as evidenced by 90% of students achieving 75% or more of the questions in a written examination.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		4.0	Test attached.
4.1	After instruction and class discussion on a systematic routine inspection procedure, student will respond orally and in writing with a proficiency rating of at least 75%, on checks and services to be performed at each inspection point.	4.1	A. Place stop number in space provided in the following sketch.  B. List three (3) checks or service to be performed at each stop. Stop #1 _____ Stop #2 _____ Stop #3 _____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 4.0 (cont'd) ISLAND SALESMANSHIP

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		4.1	Stop #4 _____ _____ _____ Stop #5 _____ _____ _____ C. List one item that is a possible sale at each stop. #1 _____ #2 _____ #3 _____ #4 _____ #5 _____ D. Using the vehicle assigned to you, service and inspect as outlined in island service procedure. Report orally to instructor any services needed.
4.2	The student will demonstrate knowledge of good personal appearance, by responding accurately to 80% of list of appearance factors.	4.2	From the following list of appearance factors, select and underline those that are desirable in an island salesman. 1. Clean shave 2. Wear uniform 3. Chew tobacco 4. No shop rags in pockets 5. Be friendly to customers 6. Very short hair 7. Move quickly 8. Sit on car while gas is pumped 9. Prop feet on vehicle bumper 10. Carry pen or pencil

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 4.0 (cont'd)

ISLAND SALESMANSHIP

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
4.3	Given necessary forms and equipment, student will demonstrate knowledge and procedures of credit card and sales slips, by his completing forms with a proficiency rate of 75% or better.	4.3	A. Using credit card form and imprinter, complete the form using your own name and car for the following sale. 10 gallons of gas @ .59 2 quarts of oil @ 1.10 1 fan belt 3.10 B. Using your own name and car complete sales slip of the following sale. 1 - G78 X 15 tire - $42.50 1 - Valve Stem - 1.50 Balance one wheel - 2.50

sentinel car-service

PLACE STAMP HERE

FLORIDA APT SERVICE
TECHNICAL HIGH SCHOOL
129 KING STREET
JACKSONVILLE, FLORIDA

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

MAKE & YEAR OF CAR

LICENSE NO

DATE SERVICED

MILEAGE

W = Warranty Requirement R = Recommended Service	Authorized YES	Authorized NO	SENTINEL CAR-SERVICE ORDER	QUAN.	AMOUNT
LUBRICATION			LUBRICATE & SERVICE ☐ To Car Mfg. Warranty Specif.		
MOTOR OIL			☐ ☐ X 100 Multigrade ☐ X 100 SAE 10 20 30		
FILTER SERVICE			OIL FILTER ☐ AIR FILTER ☐ GAS FILTER ☐		
POWER TRAIN			TRANS-MISSION ☐ Automatic ☐ Standard ☐ Differential PTS OTS		
WHEEL SERVICE			ALIGN ☐ SHOCK ABSORB. ☐ BALANCE ☐		
TIRE SERVICE			ROTATE ☐ REPAIR ☐ REPLACE ☐		
EMISSION CONTROL			PCV VALVE ☐ Clean ☐ Replace MUFFLER ☐ EXHAUST-TAIL PIPE ☐		
BATTERY SERVICE			CHECK & FILL ☐ CHARGE ☐ REPLACE CABLE ☐ REPLACE BATTERY ☐		
AIR CONDITIONING			EVACUATE CHARGE ☐ REFRIG. 12 ☐ LEAK SPOT ☐		
BRAKE SERVICE			FILL RES. ☐ BLEED ☐ REFACE DRUMS ☐ LINING ☐		
Adjust ☐ Reline ☐			MASTER CYL. ☐ WHEEL CYL ☐ LABOR ☐		
TUNE-UP SERVICE			DISTRIBUTOR ☐ SPARK PLUGS ☐ Clean ☐ Replace		
Minor ☐ Major ☐			POINTS ☐ CONDENSER ☐ ROTOR ☐		
			CARBURETOR ☐ TIMING ☐ LABOR ☐		
POWER STEERING			CHECK & FILL ☐ P.S. BELT ☐		
COOLING SYSTEM			FILL OR REPLACE ☐ COOLANT HOSE ☐ FAN BELT ☐		
GASOLINE			☐ ☐		

SAFETY INSPECTION REPORT ☑ OK ☑ Needs Attention ☒ DANGER

BRAKES	GLASS & MIRRORS	TIRES & WHEELS		
LIGHTS & TURN SIGNALS	BATTERY	FUEL SYSTEM		
HORN	STEERING & ALIGNMENT	EXHAUST SYSTEM		
SEAT BELTS	SUSPENSION & SHOCKS	COOLING SYSTEM		

TAX

TOTAL

JOB NO. 1538

The service checked above, including the use of necessary material, is hereby authorized.

SERVICE BY

CUSTOMER PHONE

TOWER DATE WANTED

X BY _____

ACCOUNTING COPY

TPO 4.0 - SERVICE STATION ATTENDANT

ISLAND SALESMANSHIP

1. In the space provided, indicate at what stop each of the following check or service will be performed.

_____Oil level	_____Clean rear glass
_____Tail light lense	_____Cooling system
_____Right wiper blade	_____As for additional sale
_____Start gas pump	_____Thank customer
_____Top off tank	_____Clean right windshield

2. In the space provided list, in order of their importance, five (5) good appearance factors covered and discussed in class.

1._____

2._____

3._____

4._____

5._____

3. List below the two (2) forms an island salesman must be able to complete.

1._____

2._____

TPO 5.0 - SERVICE STATION ATTENDANT

DAILY RECORDS

Using handout "Daily Sales Record" with previous inventories and prices, complete sheet by using information sheet of today's sales.

DAILY SHEET

GASOLINE — METER READINGS

PUMP NO	SUPER SHELL GALLONS	SUPER SHELL MONEY	SHELL OF THE FUTURE GALLONS	SHELL OF THE FUTURE MONEY	SHELL GALLONS	SHELL MONEY
1						
2						
3						
4						
TOTAL CLOSE						
OPEN						
SALES						
SALES PRICE						
AMOUNT RETAIL						

NAME DATE

GASOLINE INVENTORY CONTROL

	SUPER SHELL	SHELL OF THE FUTURE	SHELL
OPENING INVENTORY			
ADDITIONS			
TOTAL			
LESS SALES			
BOOK INVENTORY			
STICK READINGS			
DIFFERENCE (OVER)			

MOTOR OILS & A.T.F. — INVENTORY

	SHELL SUPER X	SUPER SHELL	MULTI-GRADE	X-100	GOLDEN SHELL		ATF	TOTALS
OPENING INVENTORY								
ADDITIONS								
TOTAL								
CLOSING INVENTORY								
SOLD								GALS
SALES PRICE								X X X
AMOUNT RETAIL								

SHELLZONE

	QTS	GALS	TOTAL
OPENING INVENTORY			
ADDITIONS			
TOTAL			
CLOSING INVENTORY			
SOLD			
SALES PRICE			
AMOUNT RETAIL			K

VENDING & MISCELLANEOUS

TOTAL — VENDING & MISC. L

TIRES

OPEN	ADD	SALES	CLOSE

TOTAL — TIRES F

BATTERIES

OPEN	ADD	SALES	CLOSE

TOTAL — BATTERIES G

ACCESSORIES, SPECIALTIES & PARTS

SUB TOTAL FORWARDED

SUB TOTAL

TOTAL ACCESSORIES H

LUBRICATION

TOTAL — LUBRICATION I

LABOR SALES

TOTAL — LABOR SALES J

PAID OUT OF DRAWER	
PRODUCT REPLACEMENT BANK DEPOSIT	
COMMERCIAL BANK DEPOSIT	
TOTAL BANK DEPOSITS	
CREDIT CARDS	
TOTAL PAID OUT	U

CHARGE SALES	
TOTAL CHARGE SALES	V

DEALER COLLECTIONS	
TOTAL DEALER COLLECTIONS	S

SALES SUMMARY & CASH BALANCE			
		SALES TO DATE	MONTH
A	SUPER SHELL	GALS	
B	SHELL OF THE FUTURE	GALS	
C	SHELL	GALS	
D	TOTAL GASOLINE	GALS	
E	OIL & ATF	GALS	
F	TIRES		
G	BATTERIES		
H	ACCESSORIES, SPECIALTIES & PARTS		
I	LUBRICATION		
J	LABOR SALES		
K	SHELLZONE		
L	VENDING & MISCELLANEOUS		
M			
N			
O	(LINES D THRU N) TOTAL SALES		
P	CASH (START OF DAY)		
Q	CREDIT CARDS ACCUMULATED INVOICES (START OF DAY)		
R	SALES TAX		
S	DEALER COLLECTIONS		
T	TOTAL TO ACCOUNT FOR		
U	PAID OUT OF DRAWER		
V	CHARGE SALES		
W	CASH (END OF DAY)		
X	CREDIT CARDS (END OF DAY) ACCUMULATED INVOICES		
Y	TOTAL ACCOUNTED FOR		
Z	(LINE T LESS LINE Y)	OVER	SHORT
	TODAY		
	BALANCE FORWARD		
	TO DATE		

PRODUCT REPLACEMENT BANK ACCOUNT	
A SUPER SHELL GALS @ ¢	
B SHELL OF THE FUTURE GALS @ ¢	
C SHELL GALS @ ¢	
D RENT & COLLECTIONS GALS @ ¢	
E OIL @ ¢	
F TIRES @ %	
G BATTERIES @ %	
H ACCESSORIES @ %	
I VENDING & MISC @ %	
LESS TODAY'S CREDIT CARDS	
REPLACEMENT BANK DEPOSIT	

ACCOUNTS RECEIVABLE CONTROL	
BALANCE FORWARD	
TODAY'S CHARGE SALES	V
TOTAL	
LESS COLLECTIONS	S
BALANCE OUTSTANDING	

D-16 & WORK ORDER CONTROL	FIRST NO	LAST NO
D-16		
D-16A		
D-16RC		
WORK ORDER		

ESTIMATED DAILY PROFIT	
D GALS GAS @ ¢	
½ OTHER SALES OF $	
GROSS PROFIT	
LESS AVERAGE DAILY EXPENSE	
TO DATE TODAY'S PROFIT OR (LOSS)	

TRADING STAMP CONTROL	
SALES VALUE (START OF DAY PLUS ADDITIONS)	
LESS TOTAL SALES	O
BOOK INVENTORY	
SALES VALUE END OF DAY	
TO DATE (DIFFERENCE (+ OR (—))	

CURRENT ASSETS CONTROL	CREDIT CARDS	PROD. REPLACE BANK ACCT.	COMMERCIAL BANK ACCT.
BALANCE FORWARD			
ADD TODAY	A		
TOTAL			
LESS PAID OUT TODAY			
MONTH TO DATE			

ACCOUNTS PAYABLE CONTROL	SALES TAX	PAYROLL TAXES	OTHER
	R		

PERSONAL WITHDRAWALS		
X X X	X X X	
X X X	X X X	

RECAPITULATION — SALES TO DATE (UPON COMPLETION OF THIS SECTION TRANSFER AMOUNTS FROM "TODAY" AND "TO DATE" LINES TO DEALER PROFIT MAKER BOOK)

	GAS GALS	OIL GALS	GAS $	OIL $	TIRES $	BATTERIES $	ACCESSORIES AND PARTS $	LUBRICATION $	LABOR $	SHELLZONE $	VENDING & MISC. $	TOTAL $
FORWARD												
TODAY												
TO DATE												

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 6.0 HAND TOOLS

Upon completion of instruction, demonstrations and class discussion, 90% of the students will demonstrate knowledge of tool identification, selection and care with a proficiency level of 75% or higher, on an instructor prepared test.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		6.0	Test attached.
6.1	Given a sketch of common hand tools, student will correctly identify by name 80% of those shown.	6.1	In space provided, identify by number all tools shown on hand out sheet. 1._____ 2._____ 3._____ 4._____ 5._____ 6._____ 7._____ 8._____ 9._____ 10._____
6.2	Shown five (5) open end wrenches, 90% of the students will correctly identify tool size plus or minus 1/16 inch.	6.2	In space provided identify size of tool in the order they are shown. 1._____ 2._____ 3._____ 4._____ 5._____
6.3	The student will demonstrate his knowledge of screw-drivers by listing from memory three types most commonly used by Automotive Mechanics.	6.3	In space provided list three (3) of the most commonly used by an Automotive Mechanic.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 6.0 (cont'd)

HAND TOOLS

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
6.4	The student will demonstrate his knowledge of tool care, by correct response to 75% of true-false questions.	6.4	Answer the following True or False. 1. A greasy tool is dangerous. _____ 2. An orderly arranged tool box is too time consuming. _____ 3. Tools should only be cleaned when they are not going to be used for a few days. _____ 4. Screwdrivers may be used instead of a chisel. _____ 5. Socket drivers make a suitable drift punch. _____

TPO 6.0 - SERVICE STATION ATTENDANT

HAND TOOLS

1. Draw a sketch of:

   a. Open end wrench
   b. Box socket wrench
   c. Combination end wrench

2. There are six (6) basic type of sockets. In the spaces provided list at least four (4) type (not size) commonly used by Automotive Mechanics.

   a._____

   b._____

   c._____

   d._____

3. Describe briefly how a screwdriver with a chipped blade may be successfully reshaped for usefulness.

4. Plies that are designed to cut and bend cotter key are called what?

   _____

5. In space provided, list five (5) benefits resulting from clean tools in an orderly tool box.

   a._____

   b._____

   c._____

   d._____

   e._____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 7.0

PARTS AND SERVICE MANUALS

Student will demonstrate knowledge and skill in the use of parts, specification and service manuals, by 90% of students obtaining a proficiency level of 75% on instructor-constructed test.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		7.0	See attached test.
7.1	Given random specification manual, student will locate and record specified data for a given make and model auto at least 90% proficient.	7.1	Using 1974 "Lubrication and Specification" guide, locate and record in space provided the following information on a 1970 mercury 390 CID 2 venturi. 1. Crankcase capacity_____ 2. Fuel tank capacity_____ 3. Cooling system capacity_____ 4. Oil change intervals_____ 5. Lubrication intervals_____ 6. Ignition Point dwell_____ 7. Ignition time setting_____ 8. Idle speed R.P.M._____ 9. Choke setting_____ 10. Spark plug gap_____
7.2	Given random parts manual, student will locate and record parts numbers for specific parts with a proficiency level of at least 75%.	7.2	Using 1974 "Lubrication and Specification" guide, locate and record parts numbers for the following parts. 1. Fan belt number _____ (1970 mercury 390 CID with air conditioning) 2. Radiator cap number_____ (1970 chevrolet 350 CID 2-V with A/C) 3. Spark plug number _____ (1967 Mustang 289 CID 2-V) 4. Oil filter number_____ (1970 Plymouth 318 CID) 5. Air filter number_____ (1970 Dodge 383 CID 4-V)

TPO 7.0 - SERVICE STATION ATTENDANT

PARTS AND SERVICE MANUALS

Certain information is necessary to determine correct specifications and parts number. In the space provided list the information necessary for the following:

1. Spark Plugs - _____
_____

2. Fan Belt - _____
_____

3. Carburetor - _____
_____

4. Ignition Points - _____
_____

5. Radiator Cap - _____
_____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 8.0 LUBRICATION SERVICE

Upon completion of instruction, class discussion and adequate shop application, 90% of students will demonstrate knowledge and skill in lubrication service with a proficiency rating of 75% on an instructor devised test.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		8.0	See attached test.
8.1	Student will demonstrate knowledge of lubricants by identifying appropriate lubricant for a specified friction area at a proficiency level of 80% or above.	8.1	Match the correct lubricant in column "B" with area to be lubricated in column "A". A / B 1. ball joints_____ a. chassis grease 2. hood hinges_____ b. door ease 3. lock cylinders_____ c. graphite 4. differential_____ d. motor oil 5. door latchs_____ e. gear oil 6. wheel bearing_____ f. bearing grease 7. standard transmission _____ 8. A/Transmission_____ 9. P/Steering_____ 10. universal joints____
8.2	Given a lubrication guide and specific vehicle, student will locate all lubrication points as directed in guide specifications.	8.2	Locate and clean all grease filters on 1970 Mustang, demonstrate your findings to instructor using guide as check sheet.
8.3	Given a specific vehicle student will identify and demonstrate lubrication equipment necessary to service vehicle, as determined by instructors evaluation sheet.	8.3	Select and demonstrate lubrication tools and equipment necessary to lubricate chassis and body of 1972 Plymouth.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 8.0 (cont'd) LUBRICATION SERVICE

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
8.4	Given a front wheel bearing student will express knowledge of bearing lubrication by demonstrating procedure for packing.	8.4	Remove right front wheel bearing and repack bearing following procedures outlined in instructors demonstration.
8.5	Student will demonstrate knowledge of vehicle service records, by completing random door jam stickers.	8.5	Complete hand out door jam sticker showing the following information. 1. date 2. mileage 3. services performed 4. grade of material

TPO 8.0 - SERVICE STATION ATTENDANT

LUBRICATION SERVICE EVALUATION SHEET*

1. Safety

Student observed all measures in:

a. spotting of vehicle on hoist _____
b. lifting vehicle_____
c. safety locks usage_____
d. eye protection_____
e. compressed air usage_____
f. lowering vehicle_____
g. clearing hoist from vehicle_____
h. removal of vehicle_____

2. Materials

Students correct usage of materials

a. chassis grease_____
b. bearing grease_____
c. penetrating oil_____
d. motor oil_____
e. transmission fluids_____
f. door ease_____
g. graphite_____
h. gear oil_____

3. Equipment

Student utilization of necessary equipment

a. pressure guns_____
b. squirt guns_____
c. oil pumps_____
d. spray guns_____
e. air guns_____

*Observation and utilization is criterion for grading, efficiency is not to be a factor.

TPO 8.0 - SERVICE STATION ATTENDANT

LUBRICATION SERVICE

On assigned vehicle service as indicated below:

1. place vehicle on hoist
2. lubricate chassis
3. lubricate body
4. complete necessary record forms
5. remove vehicle and relocate on parking lot

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 9.0

MOTOR OIL

Student will recognize differences in motor oil grades and their application, and demonstrate knowledge by 90% of students scoring 75% or better on teacher constructed test.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		9.0	See attached test.
9.1	Student will indicate knowledge of viscosity and how it is determined by selecting terms that apply to viscosity as evidenced by 80% correct selection.	9.1	From the following list, select and underline any word or phrase concerning viscosity. 1. thick 2. wide 3. thin 4. deep 5. saybolt meter 6. flowability 7. multi-grade 8. IOW 9. SAE 10. embossed
9.2	Student will demonstrate his knowledge in recognizing a quality motor oil by listing functions a good motor oil must perform.	9.2	A. There are five functions a quality motor oil must perform. In space provided list each. 1._____ 2._____ 3._____ 4._____ 5._____
9.3	Student will demonstrate knowledge of American Petroleum Industries classification of motor oils, by recognizing can markings and their meaning.	9.3	The following letters are classifications of API in the space provided complete what these letters mean. 1. M. L._____ 2. M. M._____ 3. M. S._____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 9.0 (cont'd) MOTOR OIL

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
9.4	Given necessary vehicle and geographic data, student will recommend correct motor oil grade and viscosity.	9.4	What motor oil should be recommended for a 1974 390 CID Ford driven locally by an elder man, averaging 12,000 miles yearly. Fill in the following ratings. SAE_____ API_____

TPO 9.0 - SERVICE STATION ATTENDANT

MOTOR OIL

1. Observing the given can of motor oil, respond to the following.

   a. List and define A.P.I. specifications:

   _____

   _____

   _____

   b. List and define S.A.E. specifications:

   _____

   _____

   _____

   c. Give example of vehicle for which this motor oil could be recommended.

2. Briefly explain why a plain mineral oil is not recommended for today's high performance engines. There are at least two major reasons you must recognize.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 10.0 FILTERS

The service station attendant students will show their recognition of the need for filters, application and service by 90% of the students achieving a score of 75% or better on a written criterion examination

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		10.0	See attached test.
10.1	Student will demonstrate his understanding for the need for filters, and areas of filter need, by correctly responding at an 80% proficiency rate to a true-false quiz.	10.1	1. Fuel filters enrich the fuel. _____ 2. Fuel systems never have more than one filter. _____ 3. Filters are always made from paper. _____ 4. In-line fuel filters are usually designed to remove water. _____ 5. A dirty air filter can cause excessive fuel consumption. _____ 6. Elimination of the air filter will shorten engine life. _____ 7. Oil filters will remove the additives from motor oil. _____ 8. The most effective oil filter is a "full-flow" type. _____ 9. Life of an oil filter should be measured in time as well as mileage. _____ 10. The same oil filter may fit on more than one make of vehicle. _____
10.2	Student will demonstrate knowledge and skill in identification of correct filter application by location proper vehicle filter from parts catalog with 100% proficiency.	10.2	Using shell accessory catalog locate and list correct parts number for the following. a. Oil Filter _____ (1970 Mercury 390 CID) b. Oil Filter _____ (1967 Chevrolet Chevelle 283 CID) c. Oil Filter _____ (1972 Plymouth Fury II 318 CID) d. Air Filter _____ (1970 Pontiac 350 CID, 2-V) e. Air Filter _____ (1968 Dodge Dart 240 CID) f. Fuel Filter _____ (1969 Mustang 351 CID, 4-V)

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 10.0 (cont'd) FILTERS

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
10.3	Student will demonstrate knowledge and skill in filter service by installing random filters following prescribed procedures with 100% proficiency.	10.3	Install oil filter and air filter on specific vehicle following procedures in tool use and safety.

TPO 10.0 - SERVICE STATION ATTENDANT

FILTERS

On assigned vehicle perform the following:

1. Determine correct oil filter, and install on vehicle.

2. Determine correct air filter and install on vehicle.

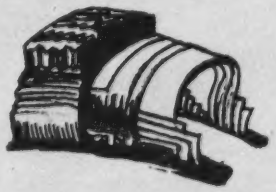
3. Determine correct gas filter and install on vehicle.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 11.0

TIRES AND TIRE SERVICE

The Service Station Attendant students will demonstrate knowledge and skill in tire construction, application and service why 90% of the students responding correctly to written and performance test prepared by the instructor.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		11.0	See attached test.
11.1	The student will indicate understanding of tire construction by explanation of types in writing and drawing, with a proficiency level of 75%.	11.1	A. Draw a sketch to illustrate the following tire construction. a. 4 ply bias construction b. belted bias construction c. radial construction d. belted radial construction B. In the above sketches indicate and name parts of tires as the following example.  1._____ 2._____ 3._____ 4._____ 5._____
11.2	Given a specific vehicle and tire application chart, the student will determine recommended tire size with 100% accuracy.	11.2	Using the assigned vehicle and handout application manual, list in the space provided the factory recommended tire size and the optional size. factory recommended size_____ optional size_____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 11.0 (cont'd)

TIRE AND TIRE SERVICE

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
11.3	After shop demonstration and discussion, student will make given tire repairs with 75% proficiency.	11.3	On assigned tubeless tire and wheel perform the following. 1. locate and mark air leak 2. breakdown and inspect tire 3. clean and prepare leak spot 4. apply cement and patch 5. reinstall tire on wheel and leak test
11.4	Student will demonstrate comprehension of abnormal tire wear by recognizing its cause at a proficiency level of at least 75% as given in a written examination.	11.4	In the following statements select from the multi-choice words, the word or phrase that is most true to the statement. 1. Even tire wear on the outside tread beads only will most likely be caused by: a. over inflation b. under inflation c. alignment condition d. poor shocks 2. Excessive tread wear that is confined to the center tread is most likely the result of: a. over inflation b. under inflation c. alignment condition d. poor shocks 3. Uneven or "lobbed" wear pattern is most likely a result of: a. over inflation b. under inflation c. alignment condition d. poor shocks 4. A tire with excessive uneven wear on only one side of the tread would most likely be the result of: a. over inflation b. under inflation c. alignment condition d. poor shocks

TPO 11.0 - SERVICE STATION ATTENDANT

TIRES AND TIRE SERVICE

1. In the space provided list the three basic parts that make up the carcas of a tire.

   a._____
   b._____
   c._____

2. When compared, there is one major difference in bias and radial tire construction, in the space below state this difference.

   _____
   _____

3. On the assigned vehicle and using tire specification char determine:

   a. tire size needed _____
   b. optional tires possible_____

4. On assigned tire and wheel perform the following:

   a. repair air leak
   b. perform and record results of radial run-out test
   c. perform and record results of latral run-out test

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 12.0

WHEELS AND WHEEL BALANCE

Upon completion of classroom instruction, shop demonstration and sufficient practice, student will demonstrate knowledge and skill in wheel construction and service as evidenced by 90% of students scoring 75% or above on written and performance test devised by instructor.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		12.0	Test attached
12.1	The student will demonstrate knowledge of wheel construction by drawing cross section view of automotive wheel and identifying each part or area.	12.1	Make a cross section drawing of a typical automobile wheel. Identify each part of wheel using arrows to direct attention.
12.2	Given a damaged wheel, the student will inspect wheel, locate and describe operation problems that will be a result of damage. Proficiency level will exceed 75%.	12.2	Inspect assigned wheel and perform the following. a. Locate damage b. List 2 major problems that will be a result of this condition if wheel were in use on vehicle. 1._____ 2._____
12.3	The student will demonstrate understanding of the need for balancing by recognition of factors contributing to out-of-balance, by correct response to multi-choice quiz at 75% proficiency.	12.3	Answer the following by selecting the correct multi-choice and underline only one. 1. The term "dynamic" means: a. motion b. at rest c. fast d. slow 2. The term "static" means: a. motion b. at rest c. fast d. slow 3. Lack of dynamic balance will cause a wheel to: a. turn backward b. bounce c. turn forward d. wobble

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 12.0 (cont'd)

WHEELS AND WHEEL BALANCE

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		12.3.	4. Lack of static balance will cause a wheel to: a. turn forward b. wobble c. turn backward d. bounce 5. An out-of-balance vibration is usually the result of: a. low speed b. rounding a curve c. applying brakes d. higher speeds
12.4	The student will demonstrate his knowledge of various types of wheel balancers by recognizing balancing procedure for each of three types with a proficiency level of 80%.	12.4	A. In the blanks provided, name the type of balancer the statement is referring to. 1. The balancer that has a counter balancer attached to the wheel is a _____ balancer. 2. The balancer that is used by placing the wheel assembly on an up-right pivot rod is called a _____ balancer. 3. A magnetic pick-up is used to measure amount of out-of-balance. This balancer is _____. B. Answer the following True or False. 1. If a wheel is balanced while on the vehicle it has been spinned balanced. _____ 2. Normally spin balancing can be accomplished using only two weights. _____ 3. Bubble balancing requires the use of only two wheel weights. _____ 4. Never remove old wheel weights until wheel has been rebalanced. _____ 5. When balancing wheel on vehicle, wheel should never be raised less than two inches while spinning. _____

TPO 12.0 - SERVICE STATION ATTENDANT

WHEELS AND WHEEL BALANCE

1. On assigned vehicle, balance right front wheel using hunter balance, and following procedures out-line instructions. Tire must be balanced to plus or minus one-half ounce.

2. Remove left front wheel and bubble balance following prescribed procedure accurate to plus or minus one-half ounce.

3. Using electronic balance, balance right rear wheel following prescribed procedure, accurate to plus or minus one-half ounce.

4. Describe briefly the difference in the rotating action of dynamic out-of-balance as opposed to static out-of-balance.

5. Explain briefly why it is desirable to split the total static weight when balancing with all types of balancers.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 13.0

BASIC AUTOMOTIVE ELECTRICITY

Upon completion of instructions, 90% of the students will demonstrate knowledge of direct current, circuits and energy storage by responding correctly to 75% of the questions on a criterion test devised by the instructor.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		13.0	Test attached.
13.1	The student will demonstrate understanding of direct current with a proficiency of 75% by recognizing differences between alternating and direct current.	13.1	A. List 3 uses of direct current in the automotive electrical system. 1._____ 2._____ 3._____ B. List 3 uses of alternating current. 1._____ 2._____ 3._____ C. In the following space draw a circuit illustrating direct current. D. In the following space draw a circuit illustrating alternating current. E. What is the most important reason why the automotive electrical system uses direct current instead of alternating current?
13.2	Given a list of materials the student will demonstrate knowledge of battery construction by correctly identifying parts of a typical wet storage battery with a proficiency level of 75%.	13.2	A. In the following list of words and phrases select and underline those that are used in the construction of an automobile battery. a. copper b. lead c. lead oxide d. fiber glass e. wood f. cotton fibers g. paper

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 13.0 (cont'd)

BASIC AUTOMOTIVE ELECTRICITY

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		13.2	B. Select and underline the parts that make up the battery from the following list. a. pump b. float c. cell d. solenoid e. terminal f. switch g. seperators h. plates i. box j. can k. lever l. pedal.
13.3	The students understanding of battery operation will be demonstrated by correct response to True-False test by scoring 75%.	13.3	Answer the following statements True or False. 1. A battery stores electricity. _____ 2. The automotive battery produces electricity by a chemical process. _____ 3. The fluid used in the battery is properly called electrolite. _____ 4. The battery fluid is a mixture of sulphuric acid and water. _____ 5. Recharging the automotive battery is accomplished by reversing the chemical action. _____
13.4	Given statements and multi-choice words, students understanding of basic circuits will be demonstrated by identifying discriptive words with 75% proficiency.	13.4	Select and underline the multi-choice word that will make a true statement from the following. 1. No electrical current will flow, unless a circuit is _____. a. broken b. completed c. open d. dead 2. Resistance in a circuit is correctly measured in _____. a. watts b. amps c. volts d. ohms

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 13.0 (cont'd)

BASIC AUTOMOTIVE ELECTRICITY

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		13.4	3. In an electrical circuit, the electricity travels through a _____. a. rubber hose b. conductor c. insulator d. carburetor 4. To protect a circuit from over load damage a _____ is used. a. solenoid b. switch c. fuse d. resistor 5. The means of wire identification designed and used in the automotive circuits is _____. a. material b. color c. size d. length

TPO 13.0 - SERVICE STATION ATTENDANT

BASIC AUTOMOTIVE ELECTRICITY

Using engine electrical circuits hand-out complete the following assignment.

1. Connect with the correct colored line all the components of the:

   a. cranking system
   b. charging system
   c. 1. ignition primary
      2. ignition secondary

2. Indicate and explain to the class the current movement in the circuit of your choice.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 14.0

ENGINE THEORY AND DESIGN

Students will demonstrate knowledge of engine theory and design as relating to the automotive service industry by 90% responding to instructor devised test with a proficiency of 75%.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		14.0	Test attached.
14.1	The students understanding of 4-stroke cycle engine will be indicated by correctly naming the four strokes with 100% proficiency.	14.1	In the space provided, list the four strokes in the correct sequence. 1._____ 2._____ 3._____ 4._____
14.2	By drawing a sketch the student will demonstrate understanding of valve action by identifying position of intake and exhaust valves relative to piston movement with 80% proficiency.	14.2	Draw a sketch indicating piston direction and valve position for each of the four strokes.
14.3	Given a list of engine designs, the student will identify vehicle usage with 80% proficiency.	14.3	Select and underline the engine types used in most american made automobiles. 1. valve-in-head 2. V-8 3. "L" head 4. overhead cam 5. opposed 6. in-line 7. slant
14.4	The student will demonstrate his knowledge of internal combustion engine by listing the three basic operating necessities with 100% proficiency.	14.4	There are 3 basic needs for the internal combustion engine to operate. In the space provided below, list each. 1._____ 2._____ 3._____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 14.0 (cont'd)

ENGINE THEORY AND DESIGN

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
14.5	Given a list of items, the student will recognize and group item as they pertain to basic operating needs with 80% proficiency.	14.5	Each of the following items can correctly be placed into one of the three above, in the space provided indicate in which group they belong. 1. carburetor _____ 2. head gasket _____ 3. fuel pump _____ 4. piston rings _____ 5. distributor _____ 6. valve spring _____ 7. fuel filter _____ 8. coil _____ 9. intake manifold _____ 10. spark plug _____

TPO 14.0 - SERVICE STATION ATTENDANT

ENGINE THEORY AND DESIGN

Using assigned vehicle, determine and check engine design and terms that apply to this vehicle.

1. 8 cylinder _____
2. 6 cylinder _____
3. 4 cylinder _____
4. V block _____
5. I block _____
6. Slant block _____
7. Valve-in-head _____
8. L-head _____
9. Flat head _____
10. Opposed block _____
11. Overhead cam _____
12. 90° engine _____
13. 60° engine _____
14. 45° engine _____
15. 4-Venturi _____
16. 2-Venturi _____
17. 1-Venturi _____
18. Exhaust headers _____
19. Fuel injection _____
20. 4-stroke engine _____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 15.0 TUNE-UP ELECTRICAL

Upon completion of class instruction, demonstrations, discussions and adequate shop application, 90% of the students will demonstrate knowledge and skill in tune-up procedure and performance by correctly responding to 75% of criterion test devised by the instructor.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		15.0	Test attached.
15.1	The student will define the 2 circuits of the ignition system.	15.1	A. Define the term "ignition primary". _____ _____ _____ B. Define the term "ignition secondary". _____ _____ _____
15.2	The student will indicate knowledge of ignition circuits, by listing with 80% proficiency components of the system.	15.2	A. List the parts that make up the primary ignition circuit. _____ _____ _____ _____ _____ _____ B. List the parts that make up secondary ignition circuit. _____ _____ _____ _____ _____ _____
15.3	The student will demonstrate knowledge of tune-up specifications and procedures by correct response to 80% of a true-false quiz.	15.3	Answer true or false 1. Point dwell can be determined by two different methods. ____ 2. Spark plug gap should always be adjusted with a wire gauge. ____ 3. Point dwell and point gap are not the same measurement. ____ 4. The condenser housing must always be grounded. ____ 5. The coil must produce at least 40,000 volts to be considered good. ____ 6. Ignition timing is always changed when dwell is changed. ____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 15.0 (cont'd) TUNE-UP ELECTRICAL

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		15.3	7. Ignition timing should always be set with R.P.M. above 1,000 ____
			8. Defective spark plug cables can be identified with the use of the osciliscope. ____
			9. The distributor automatic advance vacuum hose should never be disconnected while setting initial timing. ____
			10. Most distributors use two different methods of advancing the spark. ____

TPO 15.0 - SERVICE STATION ATTENDANT

TUNE-UP ELECTRICAL

On the assigned vehicle, perform the following:

1. Tune engine to factory specifications.

2. Make out and complete work order showing:

   a. make and model
   b. present mileage
   c. correct name of parts used
   d. specifications used in all adjustments

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 16.0

CARBURETION

Upon completion of carburetion unit, 90% of the students will demonstrate their knowledge and skill by identifying parts and performing carburetor service with a proficiency of 75% as rated by skill performance evaluation sheet attached.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		16.0	See attached test.
16.1	Given different atmospheric pressure areas the student will recognize their effect on carburetion with 100% accuracy.	16.1	The air-fuel ratio for a vehicle is different in Denver from that in Jacksonville. Explain briefly why this is true. _____ _____ _____
16.2	Given a list of true-false questions the student will indicate his knowledge of a combustible mixture by 75% accuracy in his answers.	16.2	Answer the following true-false statements relating to a combustible mixture of fuel. 1. As a liquid gasoline burns slower. _____ 2. Evaporation is a process designed to take place in the combustion chamber. _____ 3. Atomization is a process that is designed to take place in the Venturi. _____ 4. A flooded engine is almost always caused by over-evaporation of the fuel. _____ 5. In most engines the exhaust is used to help evaporate the gas. _____
16.3	The student will list at least 5 of the 7 circuits incorporated in the automotive carburetor.	16.3	In the space provided, list the 7 circuits of the automotive carburetor. 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 16.0 (cont'd) CARBURETION

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
16.4	Given a list of engine operating condition a student will identify with 80% accuracy the carburetion circuit directly affected.	16.4	In space provided, list the carburetion circuit direction involved in the following operating conditions. 1. Top speed _____ 2. Idle _____ 3. Cruising _____ 4. Full throttle _____ 5. Cold engine _____ 6. Low speed _____ 7. Acceleration _____ 8. Slowing down _____ 9. Flooding _____ 10. Starting _____
16.5	Assigned a carburetor, the student will adjust float level to given specification plus or minus one thirty second of an inch.	16.5	Adjust float level to given specifications.

TPO 16.0 - SERVICE STATION ATTENDANT

CARBURETION

1. Disassemble carburetor

2. Clean carburetor parts

3. Arrange parts in exploded view

4. Make necessary adjustments

5. Reassemble carburetor

6. Flow test carburetor

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 17.0

COOLING SYSTEM

Upon completion of instructions and shop practice, 90% of the students will correctly diagnose and repair cooling system problem on given vehicle scoring 75% on performance evaluation sheet attached.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		17.0	Test and evaluation sheet attached.
17.1	Given a list of car makes, the student will identify with 100% accuracy types of cooling systems used on each.	17.1	In the space provided, list the type of cooling systems used on the following cars. 1. Mustang_____ 2. Corvette_____ 3. Beetle_____ 4. Charger_____ 5. Porsche_____
17.2	The student will tabulate water boiling point at various pressures with a proficiency of 75%.	17.2	In space provided list the sea-level boiling point of water in the radiator if the radiator cap maintained the following pressure. 1. 5 pounds_____ 2. 15 pounds_____ 3. 8 pounds_____ 4. 0 pounds_____ 5. 10 pounds_____
17.3	Given a schematic drawing of a typical cooling system, the student will identify and list the components of the system with 75% proficiency. (copy attached)	17.3	Identify and list the parts of the cooling system shown in drawing.
17.4	Given "Cooling System Pressure Tester", the student will perform pressure test on assigned vehicle scoring at least 90% on evaluation sheet attached.	17.4	Pressure Test Cooling System on assigned vehicle and report any problems identified.

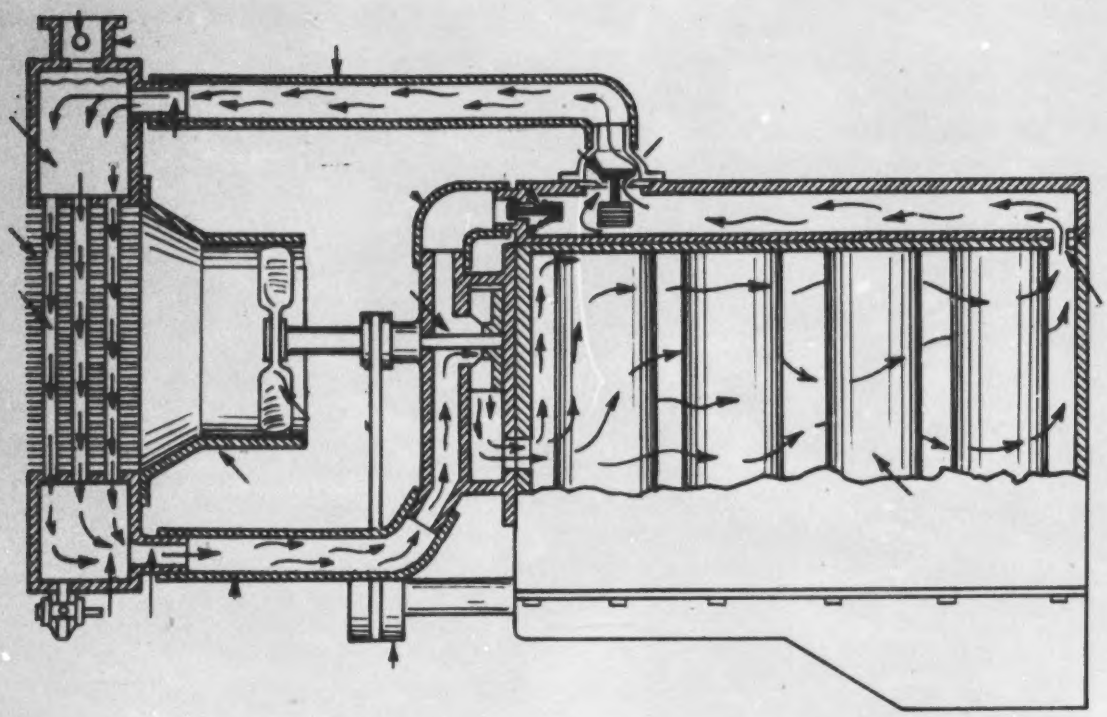
COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 17.0 (cont'd)

COOLING SYSTEM

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
17.5	The student will list from memory at least 3 of the 5 basic reasons for over-heating cooling systems.	17.5	List the 5 basic reasons for cooling system overheating. 1. _____ 2. _____ 3. _____ 4. _____ 5. _____

TPO #17.0



Using the above schematic, identify and list the ten major parts and areas that make up a typical liquid-air automotive cooling system.

1._____ 6._____

2._____ 7._____

3._____ 8._____

4._____ 9._____

5._____ 10._____

TPO 17.0 - SERVICE STATION ATTENDANT

COOLING SYSTEM

On assigned vehicle diagnose and correct over-heating caused by loss of water. You will be evaluated by the skill performance evaluation sheet.

COURSE SERVICE STATION ATTENDANT

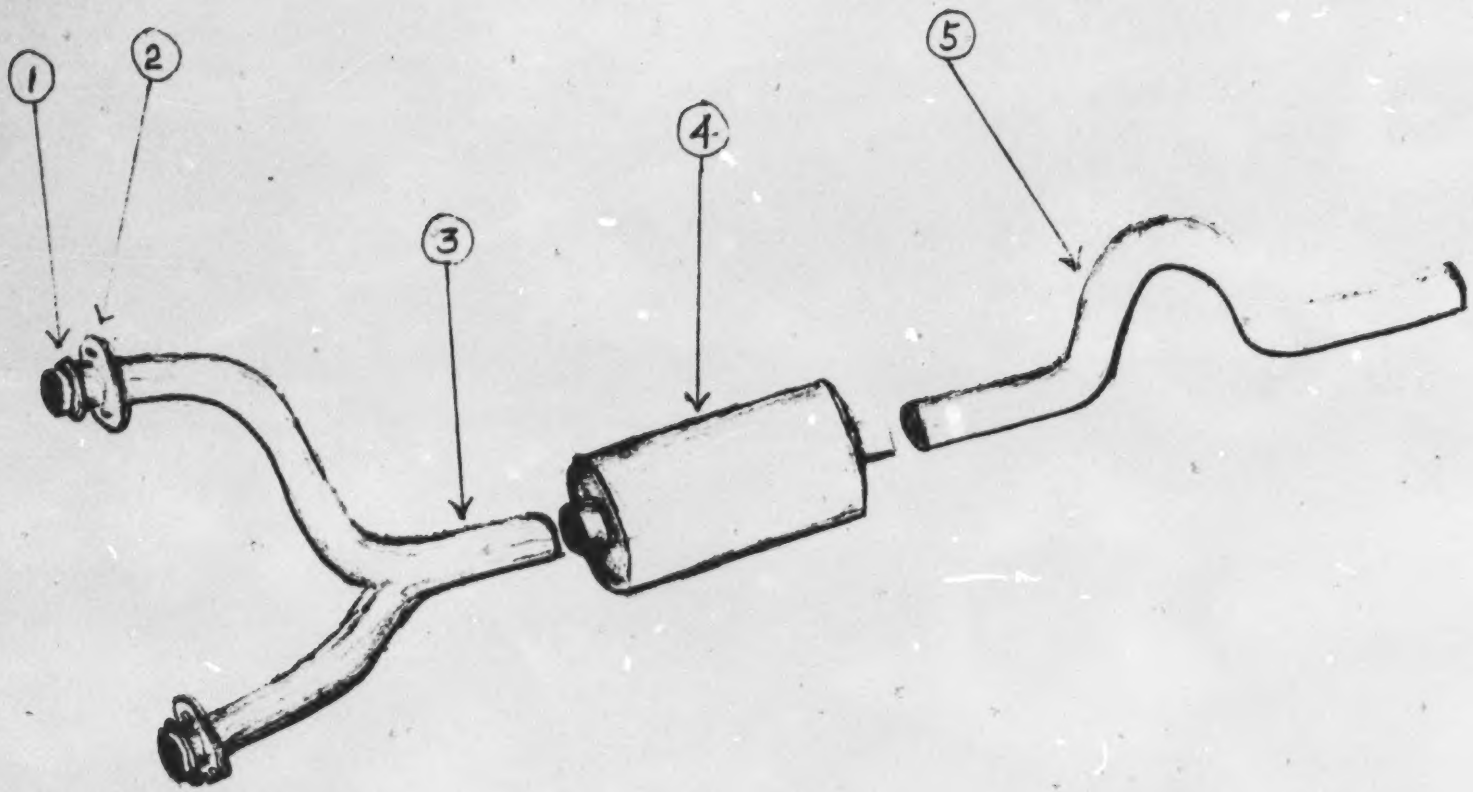
TERMINAL PERFORMANCE OBJECTIVE NO. 18.0

EXHAUST SERVICE

Upon completion of instruction, demonstrations and shop practice, 90% of the students will correctly diagnose and correct exhaust leaks on given vehicle and will achieve a proficiency level of 75% as determined by skill performance evaluation sheet attached.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		18.0	Test and evaluation sheet attached.
18.1	The student will indicate knowledge of removal of rusted exhaust system parts by listing five special tools available.	18.1	List no less than 5 special tools available in the industry to simplify removal of rusted and seized exhaust systems. 1._____ 2._____ 3._____ 4._____ 5._____
18.2	Given a schematic drawing of a typical exhaust system, the student will identify all parts with 75% accuracy. (schematic attached)	18.2	Identify and list all parts of exhaust system shown.

EXHAUST SYSTEM SCHEMATIC



TPO 18.0 - SERVICE STATION ATTENDANT

EXHAUST SERVICE

On assigned vehicle diagnose and correct exhaust leaks.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 19.0 BRAKES

The students will demonstrate knowledge and skill in diagnocis and repairs of the automotive brake system by the performing of repairs to a given vehicle with 90% of the students scoring 75% or better on attached skill performance evaluation sheet.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		19.0	Test and rating sheet attached.
19.1	The student will correctly respond to a list of questions relating to basic hydraulics with a score of 75%.	19.1	Test attached.
19.2	Given a schematic drawing of drum and disc brake component parts, student will correctly identify 90% of the parts by listing in writing.	19.2	Identify the brake components on the schematic drawing assigned to you. (See attached drawing)
19.3	The student will demonstrate his understanding of special brake tools by listing in writing five special brake tools.	19.3.	List in the space provided at least 5 special brake tools. 1._____ 2._____ 3._____ 4._____ 5._____
19.4	Given a schematic drawing of a "tandum" master cylinder, the student will identify and list component parts with 90% proficiency.	19.4	Identify and list components on the attached schematic drawing.
19.5	Given a master cylinder, the student will disassemble, clean and reassemble with a rating of not less than 75% on instructors rating sheet.	19.5	Disassemble, clean and reassemble the master cylinder assigned you. (See attached rating sheet.)

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE
OBJECTIVE NO. 19.0 (cont'd)

BRAKES

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
19.6	Assigned a mock-up brake backing plate and shoe assembly, the student will demonstrate understanding and skill by disassembling and reassembling with not less than 75% on instructor's rating sheet.	19.6	Rating sheet attached. Disassemble and reassemble the brake backing plate and shoe assembly mock-up assigned you.
19.7	The student will demonstrate understanding of brake problems and diagnosis by responding with 75% proficiency to five brake problems.	19.7	Solve the following brake problems: 1. With light foot pressure brake pedal gradually goes to floor but there is no loss of fluid. 2. There is no air in system, and all adjustments are correct, yet pedal goes to floor on first application, but full on second. 3. All adjustments are correct by brake pedal is spoungy and must be pumped to get a good pedal. 4. Grinding sound is heard coming from one wheel when brakes are applied. 5. Brake shoes are adjusted correctly yet pedal builds up and brakes lock up after vehicle has been driven and brakes are heated up.

TPO 19.0 - SERVICE STATION ATTENDANT

BRAKES

On the assigned vehicle recondition brakes on one wheel making all inspections, operations and adjustments.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 20.0

SUSPENSION AND SHOCK ABSORBERS

Given a random vehicle, students will demonstrate their understanding of suspension types and services as evidenced by 90% of students checking, evaluating and repairing system as directed in criterion test and achieving a proficiency of 75% on skill performance evaluation sheet.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		20.0	On assigned vehicle perform the following. 1. Check and evaluate ball joint condition using state inspection specifications as your guide. 2. Replace rear shock absorbers rubber grommets.
20.1	Given a list of makes of automobiles, student will select the vehicles that use "Torsion Bar Suspension" with 100% accuracy.	20.1	From the following list of auto makes, select and circle only those that use "Torsion Bar Suspension". 1. Plymouth 6. Ford 2. Mustang 7. Oldsmobile 3. Buick 8. Chrysler 4. Dodge 9. Pontiac 5. Chevrolet 10. Lincoln
20.2	The student will illustrate difference between coils and eliptical springs by drawing a sketch of each.	20.2	Draw a sketch from memory. 1. coil spring 2. eliptical spring
20.3	The student will indicate his understanding for shock absorbers by recognizing problems caused by bad shocks by scoring 75% on a criterion test.	20.3	From the following conditions, select those that could be a result of poor shock absorbers. 1. poor gas mileage 2. rough ride 3. uneven tire wear 4. poor handling 5. noise

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 21.0 VEHICLE APPEARANCE

Learner will demonstrate knowledge and skill in vehicle appearance by performance of wash and polish on assigned vehicle and achieving a score of 75% as determined by skill performance evaluation sheet.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		21.0	Test and Sheet attached.
21.1	The student will select from a list of materials, those that are suitable for automotive paint care, with 80% accuracy.	21.1	From the following list of materials select and underline only those suitable for cleaning the paint surface of an automobile. 1. gasoline 6. scouring powder 2. kerosene 7. paint remover 3. motor oil 8. polish 4. soap powder 9. wax 5. liquid soap 10. sulpheric acid
21.2	The student will demonstrate his knowledge of good auto cleaning techniques by responding correctly to 10 true-false questions.	21.2	Answer the following true-false. 1. The surface of an auto should always be rinsed before washing. _____ 2. Paint oxidation is usually the result of poor paint care. _____ 3. The painted surface of an auto should be wet when polish is applied. _____ 4. A whisk broom is the best method of cleaning the interior rugs or mats of an auto. _____ 5. When removing a spot from the upholstery, only the spot itself should be rubbed. _____ 6. When polishing an auto, the polish should never dry before it is wiped off. _____ 7. A car should always be polished in bright warm sunlight. _____ 8. Today's auto paint jobs have an additive that eliminates the need for ever being polished. _____ 9. It is an acceptable practice to clean wheels and tires with a bristle brush. _____ 10. The main reason for drying off the paint surface after a wash job is to prevent rust. _____

TPO 21.0 - SERVICE STATION ATTENDANT

VEHICLE APPEARANCE

1. Using assigned vehicle, recommended procedures and materials, wash exterior of car.

2. Using assigned vehicle, recommended procedures and materials, polish exterior of car and clean interior.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 22.0 STATION HOUSEKEEPING

Upon completion of instructions, demonstrations and observance, 90% of the students will demonstrate their knowledge of good housekeeping and its benefits by responding correctly to 75% of criterion test devised by instructor.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		22.0	Test attached.
22.1	The student will indicate his understanding of good house practices, by correctly selecting 90% of a list of jobs to be done.	22.1	Select and underline the jobs that are to be done daily from the following list. 1. clean driveway 2. paint pump islands 3. clean light fixtures 4. scrub down bays 5. clean showroom windows 6. clean bathrooms 7. empty trash cans 8. clean gas pumps 9. dust showroom stock 10. drain air compressor
22.2	The student will list in writing at least 5 benefits to be realized by the station operator as a result of good housekeeping practice.	22.2	List 5 public relation benefits that will be realized as a result of good housekeeping practices. 1._____ 2._____ 3._____ 4._____ 5._____

TPO 22.0 - SERVICE STATION ATTENDANT

STATION HOUSEKEEPING

List 10 housekeeping duties common to the service station employee, and how often they should be done.

Example: Drain air compressor - daily.

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 23.0 MERCHANDISING

Upon completion of instructions, demonstrations and observation of industry examples, 90% of the students will demonstrate their understanding for the need for and techniques of merchandising by scoring 75% on production of assigned merchandising project and written paragraph.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		23.0	Test and evaluation sheet attached.
23.1	90% of the students will list at least five benefits resulting from effective merchandising.	23.1	List five benefits to be realized as a result of good merchandising. 1._____ 2._____ 3._____ 4._____ 5._____
23.2	The students will demonstrate their knowledge of item that should be merchandised by listing five items with 100% proficiency.	23.2	List five product items that you feel should be merchandised. 1._____ 2._____ 3._____ 4._____ 5._____
23.3	Given a list of product items, students will indicate areas that merchandising displays would be most effective, as evaluated by instructor for 80% effectiveness.	23.3	Using the following list of products, indicate area or areas where displays would be most effective. 1. tires 6. auto polish 2. batteries 7. shock absorbers 3. motor oil 8. crankcase additives 4. filters 9. windshield wipers 5. spark plugs 10. vending machines

TPO 23.0 - SERVICE STATION ATTENDANT

MERCHANDISING

1. Using assigned product, develop a merchandising display.

2. Write a brief paragraph of instruction of how and where the display will be located.

YOU WILL BE EVALUATED BY:

1. Originality - 25%
2. Consumption of Space - 10%
3. Point of Contact - 25%
4. Use of Other Materials - 15%
5. Effectiveness - 25%

COURSE SERVICE STATION ATTENDANT

TERMINAL PERFORMANCE OBJECTIVE NO. 24.0 AIR CONDITION

Upon completion of instructions and being assigned a random vehicle, 90% of the students will perform air condition unit evaluation and service, achieving a score of 75% as determined by skill performance evaluation sheet.

NO.	INTERMEDIATE PERFORMANCE OBJECTIVES	NO.	CRITERION MEASURES
		24.0	Test and evaluation sheet attached.
24.1	The student will indicate his knowledge of refrigerants by recognizing its characteristics with a proficiency of 75%.	24.1	Select and circle the number of the following statements that are true. Fre-on 12 is a refrigerant that: 1. boils at temperatures below zero degrees 2. should never be exposed to open flame 3. pressure does not affect 4. as a liquid will damage any part of the body it comes in contact with 5. as a gas is sightless and odorless
24.2	The student will demonstrate his knowledge of safety hazards involved by identifying high and low pressure areas of unit, on a schematic drawing with 100% proficiency.	24.2	Draw a schematic sketch of a simple air conditioner and indicate the high and low pressure areas.
24.3	Given a manifold gauge set and random vehicle, the student will demonstrate with 100% accuracy gauge hook up.	24.3	Using assigned vehicle and manifold gauge set, demonstrate proper gauge hook-up.

TPO 24.0 - SERVICE STATION ATTENDANT

AIR CONDITIONING

On assigned vehicle perform the following:

1. install manifold gauges
2. determine state of charge and compressor operation
3. evaluate if necessary
4. add necessary refrigerant
5. remove gauges and secure all connections